EBIO334/BIOC 334: Evolution

Instructor:

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Course Website:

https://owlspace-ccm.rice.edu/portal/site/BIOC-EBIO-334-001-Sp14

Course Objectives:

By the end of this course, students will be expected to

1. Understand why evolution is important
2. Know the basic concepts and principle of molecular evolution, phyloegentics, population genetics, speciation and origins and maintenance of biological diversity
3. Understand the processes of evolution that lead to that pattern: natural selection, genetic drift, non-random mating, sexual selection ...
4. Mechanisms of genetic and phenotypic change

Required Textbook/Materials:

S. Freeman and J. C. Herron, 2007, Evolutionary Analysis 4th edition.
Some other short readings are usually be assigned. Pay attention to announcements!

Recommended Textbook/Materials:

Dan Graur; Wen-Hsiung Li (2000). Fundamentals of Molecular Evolution: Second Edition. Sinauer Associates, Inc.
Nei, M., and S. Kumar (2000) Molecular Evolution and Phylogenetics. Oxford University Press, Oxford.

Class Meeting Time/Location:

Time: MWF 10:00 – 10:50 AM
Location: 123 ABL

Credits /Pre-requisites:

3 Credits

BIOS 202 or EBIO202 is a prerequisite, but a good high school biology background should usually suffice, particularly if you are comfortable with the genetics parts. Non-majors who meet these conditions can do well in this course.

Grading Policy:

Course Item Percent of Final Grade	Pts	% of Final Grade
Homework Assignments	180	45%
Presentation	60	15%
Blog article	40	10%
Final Exam	100	25%
Participation	20	5%
Total	400	100%

The minimum point thresholds for each course letter grade are given below:

Letter Grade	**F**	**D-**	**D**	**D+**	**C-**	**C**	**C+**	**B-**	**B**	**B+**	**A-**	**A**	**A+**
%	<60	≥60	≥63.3	≥66.7	≥70	≥73.3	≥73.7	≥80	≥83.3	≥83.7	≥90	≥93.3	≥96.7

Absence policy:

You are expected to attend every lecture and take notes.Slides are NOT your notes!Exams will cover both lectures and readings. There is no makeup for exams unless you demonstrate in advance (and I agree) that a significant life-event prevents you from attending class or if you have a documented emergency. If you schedule something else during a class when you take an exam, you will get a zero for that grade.

Honor Code:

See official Rice University Honor Code policies <http://www.ruf.rice.edu/~honor/>. All exams and other assignments will be pledged, and must be completed in the time allotted unless arrangements are made ahead of time. Policies in Rice University's General Announcements apply to this course.

Students with Disabilities and other concerns:

Any student with a documented disability seeking academic adjustments or accommodations is requested to speak with Dr. Lin within the first two weeks of class. All such discussions will remain as confidential as possible. Students with disabilities will need to also contact Disability Support Services in the Ley Student Center.

Tentative Course Schedule:

Day	Date	Topic	Chapter
M	13-Jan	Course Information; What is Evolution?	
W	15-Jan	Why Study Evolution?	
F	17-Jan	The Evidence for Evolution I	2

M	20-Jan	MLK Day – No Class	
W	22-Jan	The Evidence for Evolution I	2
F	24-Jan	Mutation and Genetic variation	5
M	27-Jan	Nucleotide Substitution, Rates and Patterns	5
W	29-Jan	Sequence Alignment	4
F	31-Jan	Presentation-Why evolution is true	
M	3-Feb	Molecular Phylogeny: terms, method 1	4
W	5-Feb	Molecular Phylogeny: terms, method 1	4
F	7-Feb	Building a phylogenetic tree	4
M	10-Feb	Evolution at one locus: Hardy-Weinberg Equilibrium	6
W	12-Feb	HW: Selection 1	6
F	14-Feb	Presentation- Evolution at molecular level	
M	17-Feb	HW: Selection 2	6
W	19-Feb	HW: Mutation	7
F	21-Feb	HW: Drift	7
M	24-Feb	Evolution at two Loci	8
W	26-Feb	Evolution at Multiple Loci -quantitative genetics	8
F	28-Feb	Presentation-Evolution at population level	8
M	3-Mar	Spring Break – No Class	
W	5-Mar	Spring Break – No Class	
F	7-Mar	Spring Break – No Class	
M	10-Mar	Evolution at Multiple Loci 2-quatitative genetics	9
W	12-Mar	Adaptation-natural selection	10
F	14-Mar	Sexual Selection	11
M	17-Mar	Kin Selection	12
W	19-Mar	Life History Evolution 1	13
F	21-Mar	Presentation-Selection	
M	24-Mar	Life History Evolution 2	13
W	26-Mar	Speciation 1	16
F	28-Mar	Speciation 2	16
M	31-Mar	Evolution of Development I	19
W	2-Apr	Evolution of Development II	19
F	5-Apr	Spring Recess – No Class	
M	7-Apr	Evolution of Development III	19
W	9-Apr	Evolution of Development III	19
F	11-Apr	Presentation-Speciation, EvoDevo	
M	14-Apr	Origin of Life	17
W	16-Apr	Cambrian-Explosion	18
F	18-Apr	Presentation- Evolution history of organisms	19

M	21-Apr	Human Evolution	20
W	23-Apr	Presentation-Human evolution	20
F	25-Apr	Review	
TBA		Final Exam	